



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/591,600

09/05/2006

Rahul Malik

L9289.06170

3382

52989

7590

01/27/2009

Dickinson Wright PLLC

James E. Ledbetter, Esq.

International Square

1875 Eye Street, N.W., Suite 1200

Washington, DC 20006

EXAMINER

DONADO, FRANK E

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

01/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,600	Applicant(s) MALIK ET AL.	
	Examiner FRANK DONADO	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Art Unit Location

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 18-19 and 22-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Benveniste (**US Patent No. 7,095,754**).

Regarding claim 18, Benveniste teaches a wireless communication method comprising: at media access controllers of all receiving stations in a communication system, detecting a signal indicating no expected response or intent to continue in a received signal; and at said media access controllers of said all receiving stations in said communication system, when said signal is detected, interpreting a first idle time slot subsequent to transmission as being reserved for a network controller to gain a

prioritized medium access **(In a Tiered Contention Multiple Access (TCMA) protocol, a point coordinator 705B in an access point 708B receives a higher QoS(B) data source than a contending access point 708A, the access point 708B associated with the point coordinator 705B seizes control of the medium during a TCMA access point contention period 735, during which no response is expected due to colliding transmissions of contending wireless stations that signal to said access point 708B associated with the point coordinator 705B it must perform the TCMA protocol, to give priority to a waiting wireless station 702 that is waiting to transmit a high priority contention free poll frame 720 during the next available time slot 716, indicating said point coordinating access point 708B controls the network during said contention period 735 during which no response is expected due to the colliding transmissions, Column 21, lines 37-39, 52-53 and 56-58 and Column 22, lines 9-25)** and interpreting a second idle time slot subsequent to said transmission as being a minimum time for which a station waiting to initiate a transmission on a medium must wait before commencing a backoff procedure or initiating a transmission **(After the time slot following 735, a wireless station waiting to initiate a transmission 704B waits time slot 716 before initiating their transmission packet 724B, Column 22, lines 42-49 and Figure 7B).**

Regarding claim 19, Benveniste teaches the method according to claim 18, wherein said signal is included in a header of a frame **(Frame header information includes feedback information on the success or failure of a transmission attempt**

Art Unit: 2617

that are received by nodes waiting to transmit their packet, Column 27, lines 42-50 and 60-67, Column 28, lines 1-9 and Figure 6).

Regarding claim 22, Benveniste teaches the method according to claim 18, wherein said signal is in the form of one subcarrier or plural subcarriers comprised of subcarriers for data transmission or a combination of subcarriers used for data transmission in a multicarrier symbol of a frame (**Said TCMA protocol includes a clear channel assessment (CCA) function that allots a time period that is set at the minimum attainable time for the physical (PHY) specification, where different physical (PHY) specifications are defined by the IEEE 802.11 Wireless LAN standard, one of them being Orthogonal Frequency Division Multiplexing (OFDM), which transmits information via subcarriers and OFDM symbols, Column 32, lines 22-28 and 36-38. Also, Figure 7A comprises a wireless LAN in which said symbol of a previous frame 713 is transmitted).**

Regarding claim 23, Benveniste teaches a transmitter in a wireless communication system, the transmitter comprising: a transmitting section that transmits a frame comprising a first signal indicating no expected response or intent to continue; and a redefining section that redefines a frame timing to reduce an inter-frame space using a second signal showing said inter-frame space defined in a receiving station of a communicating party based on said first signal (**In a Tiered Contention Multiple Access (TCMA) protocol, a point coordinator 705B in an access point 708B receives a higher QoS(B) data source than a contending access point 708A, the access point 708B associated with the point coordinator 705B seizes control of**

Art Unit: 2617

the medium during a TCMA access point contention period 735, during which no response is expected due to colliding transmissions of contending wireless stations that signal to said access point 708B associated with the point coordinator 705B it must perform the TCMA protocol, to give priority to a waiting wireless station 702 that is waiting to transmit a high priority contention free poll frame 720 during the next available time slot 716, indicating said point coordinating access point 708B controls the network during said contention period 735 during which no response is expected due to the colliding transmissions, Column 21, lines 37-39, 52-53 and 56-58 and Column 22, lines 9-25).

Regarding claim 24, Benveniste teaches a receiver in a wireless communication system, the receiver comprising: a detecting section that detects a signal indicating no expected response or intent to continue in a received signal; an interpreting section that, when said signal is detected, interprets a first idle time slot subsequent to transmission as being reserved for a network controller to gain a prioritized medium access **(In a Tiered Contention Multiple Access (TCMA) protocol, a point coordinator 705B in an access point 708B receives a higher QoS(B) data source than a contending access point 708A, the access point 708B associated with the point coordinator 705B seizes control of the medium during a TCMA access point contention period 735, during which no response is expected due to colliding transmissions of contending wireless stations that signal to said access point 708B associated with the point coordinator 705B it must perform the TCMA protocol, to give**

Art Unit: 2617

priority to a waiting wireless station 702 that is waiting to transmit a high priority contention free poll frame 720 during the next available time slot 716, indicating said point coordinating access point 708B controls the network during said contention period 735 during which no response is expected due to the colliding transmissions, Column 21, lines 37-39, 52-53 and 56-58 and Column 22, lines 9-25) and interprets a second idle time slot subsequent to said transmission as being a minimum time for which a station waiting to initiate a transmission on a medium must wait before commencing a backoff procedure or initiating a transmission **(After the time slot following 735, a wireless station waiting to initiate a transmission 704B waits time slot 716 before initiating their transmission packet 724B, Column 22, lines 42-49 and Figure 7B).**

Regarding claim 25, Benveniste teaches a method for reducing medium access overhead in a wireless network comprising a plurality of stations, wherein a station dynamically alters an inter frame space by redefining an interpretation of the inter frame space, said method comprising the steps of: detecting a signal indicating no expected response or intent to continue in a received signal; and redefining the interpretation of the inter frame space to contain a time slot shorter than time slot usually allocated when the signal is detected **(In a Tiered Contention Multiple Access (TCMA) protocol, a point coordinator 705B in an access point 708B receives a higher QoS(B) data source than a contending access point 708A, the access point 708B associated with the point coordinator 705B seizes control of the medium during a TCMA access point contention period 735, during which no response is expected due to**

Art Unit: 2617

colliding transmissions of contending wireless stations that signal to said access point 708B associated with the point coordinator 705B it must perform the TCMA protocol, to give priority to a waiting wireless station 702 that is waiting to transmit a high priority contention free poll frame 720 during the next available time slot 716, indicating said point coordinating access point 708B controls the network during said contention period 735 during which no response is expected due to the colliding transmissions, Column 21, lines 37-39, 52-53 and 56-58 and Column 22, lines 9-25).

Regarding claim 26, Benveniste teaches the method according to claim 25, wherein the station, on detecting a signal indicating an expected response or intent to continue in a received signal, interprets: a first idle time slot subsequent to a transmission as being reserved for signaled response/continuation **(In a Tiered Contention Multiple Access (TCMA) protocol, a MAC layer gains access to the network during the 1st time slot 715 following transmission of last symbol of previous frame 713 to allow for highest priority packets to be transmitted, where said 1st time slot is a time slot during which frames are transmitted without contention, indicating a time during which a signal is expected to be transmitted or continue, Column 7, lines 35-37, Column 21, lines 66-67 and Column 22, lines 1-8 and Figure 7B); a second idle time slot subsequent to the transmission as being reserved to gain prioritized medium access (In a Tiered Contention Multiple Access (TCMA) protocol, a point coordinator 705B in an access point 708B receives a higher QoS(B) data source than a contending access point 708A, the access point**

708B associated with the point coordinator 705B seizes control of the medium during a TCMA access point contention period 735, during which no response is expected due to colliding transmissions of contending wireless stations that signal to said access point 708B associated with the point coordinator 705B it must perform the TCMA protocol, to give priority to a waiting wireless station 702 that is waiting to transmit a high priority contention free poll frame 720 during the next available time slot 716, indicating said point coordinating access point 708B controls the network during said contention period 735 during which no response is expected due to the colliding transmissions, Column 21, lines 37-39, 52-53 and 56-58 and Column 22, lines 9-25); and a third idle time slot subsequent to the transmission as being the minimum time that a station waiting to initiate a transmission on a medium must wait before commencing a backoff procedure or initiating the transmission (After the time slot following 735, a wireless station waiting to initiate a transmission 704B waits time slot 716 before initiating their transmission packet 724B, Column 22, lines 42-49 and Figure 7B).

Regarding claim 27, Benveniste teaches the method according to claim 25, wherein the station, on detecting the signal indicating no expected response or intent to continue in the received signal, interprets: a first idle time slot subsequent to a transmission as being reserved to gain prioritized medium access **(In a Tiered Contention Multiple Access (TCMA) protocol, a point coordinator 705B in an access point 708B receives a higher QoS(B) data source than a contending access point 708A, the access point 708B associated with the point coordinator**

Art Unit: 2617

705B seizes control of the medium during a TCMA access point contention period 735, during which no response is expected due to colliding transmissions of contending wireless stations that signal to said access point 708B associated with the point coordinator 705B it must perform the TCMA protocol, to give priority to a waiting wireless station 702 that is waiting to transmit a high priority contention free poll frame 720 during the next available time slot 716, indicating said point coordinating access point 708B controls the network during said contention period 735 during which no response is expected due to the colliding transmissions, Column 21, lines 37-39, 52-53 and 56-58 and Column 22, lines 9-25); and a second idle time slot subsequent to the transmission being the minimum time that a station waiting to initiate a transmission on a medium must wait before commencing a backoff procedure or initiating the transmission (After the time slot following 735, a wireless station waiting to initiate a transmission 704B waits time slot 716 before initiating their transmission packet 724B, Column 22, lines 42-49 and Figure 7B).

Regarding claim 28, Benveniste teaches a method for reducing medium access overhead

in a wireless network comprising a plurality of stations, wherein a station dynamically alters an inter-frame space by redefining an interpretation of the inter-frame space (In a Tiered Contention Multiple Access (TCMA) protocol, a MAC layer gains access to the network during a 1st time slot 715 following transmission of last symbol of previous frame 713 to allow for highest priority packets to be transmitted, Column

Art Unit: 2617

21, lines 66-67 and Column 22, lines 1-8 and Figure 7B), said method comprising the steps of: checking a medium activity indicator determining the end of activity on the medium (A NAV indicator is set by a duration field in all stations to indicate the amount of time a medium is reserved and thus when the end of activity will occur to all stations detecting an RTS frame, where RTS frames are employed that contain said duration field and are included as part of packet information, Column 5, lines 51-58, Column 8, lines 39-41, Column 28, lines 4-9 and Figure 6); and redefining the interpretation of the inter-frame space to contain a time slot shorter than a time slot usually allocated when the medium activity indicator is checked (Since interframe space is redefined for a higher priority transmission to reduce the normal time waited for the medium to be available again during this process, the inter-frame space has been redefined to contain a time slot shorter than the time slot usually allocated when the medium activity indicator is checked, as explained by columns above).

Regarding claim 29, Benveniste teaches a method for reducing medium access overhead in a wireless network comprising a plurality of stations, wherein a station dynamically alters an inter-frame space by redefining an interpretation of the inter-frame space (In a Tiered Contention Multiple Access (TCMA) protocol, a point coordinator 705B in an access point 708B receives a higher QoS(B) data source than a contending access point 708A, the access point 708B associated with the point coordinator 705B seizes control of the medium during a TCMA access point contention period 735, during which no response is expected due to colliding

Art Unit: 2617

transmissions of contending wireless stations that signal to said access point 708B associated with the point coordinator 705B it must perform the TCMA protocol, to give priority to a waiting wireless station 702 that is waiting to transmit a high priority contention free poll frame 720 during the next available time slot 716, indicating said point coordinating access point 708B controls the network during said contention period 735 during which no response is expected due to the colliding transmissions, Column 21, lines 37-39, 52-53 and 56-58 and Column 22, lines 9-25), said method comprising the steps of: resetting a medium activity indicator when no medium activity is indicated at the instant of time that activity is expected as indicated by the medium activity indicator (A NAV indicator is set by a duration field in all stations to indicate the amount of time a medium is reserved and thus when the end of activity will occur to all stations detecting an RTS frame, where RTS frames are employed that contain said duration field and are included as part of packet information. Said NAV expires (is reset) when access to the medium is available again, indicating that if the NAV of the station expects activity (NAV is expired and set at some value) but no activity occurs, such as during a transmission collision, the NAV will be reset back to the value indicating to the wireless station not to expect activity for some duration indicating the time reserved/needed by the medium, Column 5, lines 51-58, Column 8, lines 39-41, Column 28, lines 4-9 and Figure 6); and redefining the interpretation of the inter-frame space to contain a time slot shorter than a time slot usually allocated when the medium activity indicator is reset (Since interframe space is redefined for a higher priority

Art Unit: 2617

transmission to reduce the normal time waited for the medium to be available again after a transmission failure during this process, the inter-frame space has been redefined to contain a time slot shorter than the time slot usually allocated when the medium activity indicator is reset, as explained by columns above).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 2617

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benveniste.

Regarding claims 20 and 21, Benveniste teaches the method according to claim 18, where said signal is included in a header of a frame. Benveniste does not teach said signal is included in a preamble or footer of a frame. It would have been an obvious matter of design choice to one of ordinary skill in the art at the time of the invention to modify the invention of Benveniste to place the signal information in the preamble or footer of said frame for the benefit of transmission efficiency, since applicant has not disclosed that this difference solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with or without the difference.

Response to Arguments

8. Applicant's arguments with respect to claims 18, 23-25, 28 and 29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Art Unit: 2617

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANK DONADO whose telephone number is (571) 270-5361. The examiner can normally be reached Monday-Friday, 9:30 am-6 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-270-6361.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-273-8300.

Frank Donado
Art Unit 2617

/Rafael Pérez-Gutiérrez/

Supervisory Patent Examiner, Art Unit 2617

Application/Control Number: 10/591,600
Art Unit: 2617

Page 15